

JUL 31 2007

Application No.: 10/714,464

Art Unit: 1745

Docket No.: IIW-035

REMARKS

In this Response, Applicants amend claims 1-5. Claims 1-5 are currently pending, of which claim 1 is independent. Claims 6-20 remain withdrawn. No new matter has been introduced. Support for the amendments to claim 1 can be found on Figure 1, page 9, line 11 – page 10, line 8, and page 10, lines 14-16 of the instant application. Applicants respectfully submit that the pending claims define over the art of record.

Claim Objection

Claims 1-5 are objected to because the claims recite a humidifier but require a combination of elements including fuel cell components such as a supply gas, a cooling medium and a warming device. See Office Action, page 4. In the foregoing claim amendments, Applicants have amended claims 1-5 to claim a **fuel cell system** including fuel cell components. As such, Applicants respectfully request reconsideration and withdrawal of the objection to claims 1-5.

Claim Rejections under 35 U.S.C. §102

Claims 1-5 are rejected under 35 U.S.C. §102(b) as being anticipated by United States Patent Publication Number 2001/0015501 to Katagiri et al (hereafter “Katagiri”). See Office Action, page 5. Applicants respectfully traverse the 35 U.S.C. §102(b) rejection of claims 1-5 as set forth below.

The Katagiri reference relates to a humidifier including a housing which accommodates a large number of water permeable hollow fiber membranes arranged along the longitudinal direction of the housing. Two different gasses having different moisture contents pass through outside and inside of the bundle of the hollow fiber membranes separately to exchange their moistures through the hollow fiber membranes. The dry gas of lesser moisture content is thus humidified. See Katagiri, abstract.

Applicants respectfully submit that the Katagiri reference fails to disclose at least the following feature of amended independent claim 1: “a device for warming the supply gas composed of conduits through which a cooling medium exhausted from the fuel cell is passed,

Application No.: 10/714,464

Art Unit: 1745

Docket No.: IIW-035

said device including a first conduit disposed along said connecting member, *a second conduit disposed around an outer circumference of one of said pair of heads, and a third conduit disposed around an outer circumference of the other of said pair of heads.*"

The Examiner cites Figure 1 in the Katagiri reference as disclosing the connecting member and the pair of heads recited in claim 1. In connection with Figure 1, the Katagiri reference teaches a humidifier 100 including a housing 101 which accommodates fiber membranes 104 (Katagiri, Figure 1). The humidifier also includes a first head cover 108 and a second head cover 109 (Katagiri, Figure 1). A second inlet 106 introduces moist air or moist gas directly into the first head cover 108 (Katagiri, Figure 1). A second outlet 107 discharges the moist air directly out of the second head cover 109 (Katagiri, Figure 1). The Katagiri reference does not disclose that the second inlet 106 is *disposed around the outer circumference of the first head cover 108*. The Katagiri reference also does not disclose that the second outlet 107 is *disposed around the outer circumference of the second head cover 109*. In contrast, claim 1 requires "a second conduit disposed around an outer circumference of one of said pair of heads, and a third conduit disposed around an outer circumference of the other of said pair of heads." The Katagiri reference fails to disclose these features of claim 1.

The Examiner also cites Figures 12 and 13 in the Katagiri reference as disclosing the device for warming the supply gas composed of conduits recited in claim 1. In connection with Figure 12, the Katagiri reference teaches that cooling water is used for flowing around the humidifier to heat the exhaust gas which is supplied into the humidifier (Katagiri, paragraph [0108]). In connection with Figure 13, the Katagiri reference teaches that cooling water used for cooling the fuel cell is flowed along the piping tube leading the exhaust gas to the humidifier to heat the exhaust gas to the supplied into the humidifier (Katagiri, paragraph [0110]). However, the Katagiri reference does not disclose "a second conduit disposed around an outer circumference of one of said pair of heads, and a third conduit disposed around an outer circumference of the other of said pair of heads," as recited in claim 1.

In view of the foregoing amendments and arguments, Applicants respectfully request reconsideration and allowance of claim 1.

Application No.: 10/714,464

Art Unit: 1745

Docket No.: IIW-035

Claims 2-5 depend upon independent claim 1, and add separate and patentable limitations to claim 1. As such, for this and the reasons set forth above, Applicants respectfully submit that the dependent claims also define over the art of record.

Claim Rejections under 35 U.S.C. §103

Claims 1-5 are rejected under 35 U.S.C. §103(a) as being unpatentable over the Katagiri reference in view of United States Patent Publication Number 2002/0041985 to Shimanuki et al (hereafter "Shimanuki"). See Office Action, pages 6-7. Applicants respectfully traverse the 35 U.S.C. §103(a) rejection of claims 1-5 as set forth below.

Applicants respectfully submit that the Katagiri and Shimanuki references, alone or in any combination, fail to teach or suggest at least the following feature of amended independent claim 1: "a device for warming the supply gas composed of conduits through which a cooling medium exhausted from the fuel cell is passed, said device including a first conduit disposed along said connecting member, *a second conduit disposed around an outer circumference of one of said pair of heads, and a third conduit disposed around an outer circumference of the other of said pair of heads.*"

As discussed above, the Katagiri reference fails to teach or suggest this feature of claim 1. The addition of the Shimanuki reference fails to cure this deficiency.

The Shimanuki reference relates to a fuel cell including a humidifying section for bringing the exhaust gas exhausted from the fuel cell into contact with the fuel gas which is made to flow out from an ejector, via a water permeable membrane, to thereby humidify the fuel gas by the water content in the exhaust gas. The humidifying section is arranged between the fuel cell and the ejector. See Shimanuki, abstract.

Applicants respectfully submit that the Shimanuki reference also fails to teach or suggest "a device for warming the supply gas composed of conduits through which a cooling medium exhausted from the fuel cell is passed, said device including a first conduit disposed along said connecting member, *a second conduit disposed around an outer circumference of one of said*

Application No.: 10/714,464

Art Unit: 1745

Docket No.: IIW-035

pair of heads, and a third conduit disposed around an outer circumference of the other of said pair of heads,” as recited in claim 1.

The Shimanuki reference teaches a humidification means in a fuel cell system that includes two humidifying sections (Shimanuki, Figure 1). An oxidant humidifying section 14 includes a water-permeable membrane and uses oxidant side exhaust gas as the humidifying gas for the oxidant gas supplied from the oxidant supply section 13 (Shimanuki, Figure 1). A fuel humidifying section 16 also includes a water-permeable membrane and uses fuel side exhaust gas as the humidifying gas for the mixed fuel gas made to flow from the ejector 15 (Shimanuki, Figure 1). Nonetheless, the Shimanuki reference does not teach or suggest “a device for warming the supply gas composed of conduits through which a cooling medium exhausted from the fuel cell is passed, said device including a first conduit disposed along said connecting member, *a second conduit disposed around an outer circumference of one of said pair of heads, and a third conduit disposed around an outer circumference of the other of said pair of heads,”* as recited in claim 1.

In view of the foregoing arguments, Applicants respectfully submit that the Katagiri and Shimanuki references, alone or in any combination, fail to teach or suggest each and every feature of independent claim 1. As such, Applicants respectfully submit that claim 1 defines over the art of record. Applicants respectfully request reconsideration and withdrawal of the U.S.C. §103(a) rejection of claim 1.

Claims 2-5 depend upon independent claim 1, and add separate and patentable limitations to claim 1. As such, for this and the reasons set forth above, Applicants respectfully submit that the dependent claims also define over the art of record.

JUL 31 2007

Application No.: 10/714,464

Art Unit: 1745

Docket No.: IIW-035

CONCLUSION

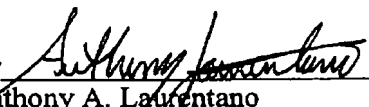
In view of the foregoing amendments and arguments, Applicant believes the pending application is in condition for allowance.

Any fee due is authorized to be charged to our Deposit Account No. 12-0080, under Order No. IIW-035 from which the undersigned is authorized to draw. If the requisite petition does not accompany this response, the undersigned hereby petitions under 37 C.F.R. §1.136(a) for an extension of time for as many months as are required to render this submission timely.

Dated: July 31, 2007

Respectfully submitted,

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